

### **REMARKS/ARGUMENTS**

Claims 6-9 are pending in the application. Claims 6 and 8 have been amended to remove the word "solid", and to indicate that the ceramic sleeve and the moveable ceramic piston are ground in to fit very accurately in order to avoid leakage between the piston and the sleeve. No new matter is added; support for this amendment can be found at page 5, lines 9-10. The words "into a disperser" in the preamble of Claims 6 and 8 has been modified to "through a disperser" to make the claim language consistent with the specification at page 4, line 27.

#### **Rejections under 35 U.S.C. §112**

Claims 6-9 are rejected under 35 U.S.C. §112, first paragraph, as failing to comply with the written description requirement for use of the term "solid" as a modifier for "ceramic". Applicants have removed this term from Claims 6 and 8 and respectfully request withdrawal of this basis of rejection.

#### **Rejections under 35 U.S.C. § 103(a)**

This application is assigned to Bayer AG and the assignment has been recorded in the United States Patent and Trademark Office at Reel/Frame 012687/0220. Accordingly, the subject matter of the claimed invention was commonly owned at the time of invention.

Claims 6-9 are rejected under 35 U.S.C. § 103(a) as being obvious over U.S. 5,723,518 to Kahl et al., further in view of GB 997,974 in combination with U.S. 4,784,178 to Kasaya et al. and U.S. 3,706,320 to Kalsi. Applicants respectfully traverse this rejection.

In the present invention, a disperser having ceramic components is used to create an emulsion. The ceramic components of the disperser include a ceramic piston and ceramic sleeve. As described in the specification at page 5, lines 9-10, these components are ground in to fit precisely, to avoid leakage problems. This solution to the problem of leakage is not taught or suggested by any of the references cited in the Office Action.

Kahl discloses a method of preparing an aqueous coating composition based on resin binders and polyisocyanates, by mixing the components with water. The

mixture is forced at a pressure of from 1 to 30 MPa through a nozzle of small size in at least one dimension. As conceded in the Office Action, Kahl does not disclose the jet dispersers of the present invention. In particular, Kahl does not disclose dispersers having ceramic components which are ground to fit exactly to avoid leakage between the piston and the sleeve of the disperser. Kahl does not disclose the use of ceramic components, and does not describe how to manage leakage problems at all.

GB 997,974 is apparently cited to support the general proposition that "jet dispersers having the claimed pipe, sleeve and piston arrangement were known" at the time of the present invention. However, and as conceded in the Office Action, the '974 patent does not teach several of the claimed features, including pneumatic control and the use of ceramic materials. Additionally, the '974 patent also does not disclose the use of ceramic components, and does not describe how to manage leakage problems at all. Therefore, one skilled in the art, using the dispersers shown in the '974 patent to make the emulsions shown in Kahl, would not arrive at the emulsions of the present invention, as asserted in the Office Action at page 4, paragraph 6.

Kalsi is apparently cited for its disclosure of pneumatic operators to control flow through valves. Significantly, Kalsi does not teach any other aspect of the claimed disperser, and does not teach preparation of emulsions. There is no disclosure of the use of ceramic components in a disperser to avoid leakage problems and to produce a superior emulsion. This reference does not provide the missing teachings nor render obvious the present claims.

Kasaya et al. is cited to provide the missing teaching, namely, the use of ceramic components. Applicants respectfully submit that Kasaya et al. do not provide the missing teaching, for the reasons discussed below.

Kasaya et al. disclose a valve unit having an on-off switch. The valve unit comprises a conical member **9** which serves as a valve body and is formed at the end portion of the needle valve **8**. It further comprises a valve seat **10** the shape of which matches the conical member **9**. It also has a chamber **11** defined in the nozzle body **6** adjacent to the valve seat **10** and the chamber **11** is communicated with a

fuel path **12** (col. 3, lines 1-8). This means that the valve is used to inject a liquid component (i.e. fuel) through a single opening in the valve seat **10**. Thus, the valve as taught by Kasaya et al. allows injection of a liquid, and is not able to produce an emulsion.

A valve as shown in Kasaya et al. has nothing to do with the disperser as used in the present invention. To produce an emulsion from a mixture of two liquids (i.e. at least one polyisocyanate and an aqueous binder dispersion) the mixture needs to be finely dispersed. This is accomplished by a disperser having a multiplicity of bores or slots through which the mixture is pumped. The valve unit of Kasaya et al. does not include a multiplicity of bores or slots through which the mixture is pumped. A person skilled in the art trying to solve the problem of producing a coating emulsion would not turn to Kasaya et al. in order to find a solution for his problem since Kasaya et al. do not teach a method or apparatus for producing an emulsion at all, but merely teach injection of a liquid through a valve.

Furthermore, even if the person skilled in the art considers Kasaya et al. in order to find a solution to the problem of producing an emulsion, he will not arrive at the claimed process using a disperser. This is because Kasaya et al. teach coating the needle valve **8** with a thin layer **26** of zirconium oxide in order to maintain the electrical insulation between the outer surface **8a** of the larger diameter portion of the needle valve **8** and the inner surface of the guide hole **7** of the nozzle body **6** (col. 3, lines 39-49). Looking closely at Figure 1 in Kasaya et al., it can be seen that it is only the larger diameter portion of the needle valve **8** that is coated by a thin layer, not the conical end portion **9** of the needle valve **8** that is coated. According to Figure 1 in Kasaya et al. the larger diameter portion of the needle valve is not in contact with the liquid. So, there is no problem of leakage between the needle valve and the guide hole of the nozzle body at the larger diameter portion of the valve. The problem of leakage may only arise at the conical end portion of the needle valve at the opening in the valve seat **10**. This conical end portion of the needle valve, however, is not coated with a thin layer of zirconium oxide. The problem of leakage is not even discussed in Kasaya et al.

In contrast, in the inventive process a disperser is used that has a ceramic sleeve having bores or slots in the wall thereof and having a moveable ceramic

piston. The ceramics components are ground to fit very accurately in order to avoid leakage between the piston and the sleeve. In other words, according to the invention ceramics material is used in the disperser where leakage may occur. One skilled in the art cannot deduce that it is advantageous to use a ceramic sleeve and ceramic piston to avoid leakage and thus to improve the quality of the emulsion from the disclosure of Kasaya et al., in which a valve having a thin layer of zirconium oxide in the larger diameter portion of the needle valve (i.e. in a region where no leakage may occur) is used to maintain electrical insulation. Applicants respectfully submit that Kasaya et al. does not render the present invention obvious, alone or in combination with other references.

Applicants do not dispute the notion that jet dispersers and pneumatic control of valves were generally known in the art. However, jet dispersers having the claimed features were not known, and are not taught or suggested by any of the references, alone or in combination. The rejection in the present case is based on nothing more than hindsight reconstruction in which the Examiner picks and chooses among the references to arrive at the present invention. Other than the Kahl reference, the references cited are at least 17 years old. Applicants submit that if the present invention was so obvious, it would have been arrived at long ago.

For all of the reasons stated above, Applicants respectfully submit that Claims 6-9 are not obvious in view of the references cited, and request withdrawal of the §103 rejection.

#### **Double Patenting Rejection**

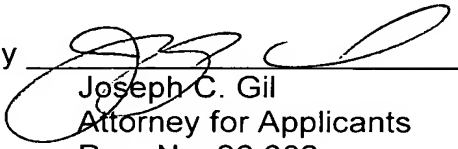
Applicants submit herewith a Terminal Disclaimer over copending application Serial No. 10/789,026, to overcome the double patenting rejection of Claims 6-9 of the present application over Claims 1-6, 24 and 25 of the copending application.

**Conclusion**

In view of the amendments and remarks, Applicants assert that the claims 6-9 are now in condition for allowance; such action is respectfully requested at an early date.

Respectfully submitted,

By

  
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Joseph C. Gil  
Attorney for Applicants  
Reg. No. 26,602

Bayer MaterialScience LLC  
100 Bayer Road  
Pittsburgh, Pennsylvania 15205-9741  
(412) 777-3813  
FACSIMILE PHONE NUMBER:  
(412) 777-3902

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